

BREAKING THE CODE

REPLICATION

For each of the three DNA sequences below, write the sequence of the complementary strand of DNA that results after replication.

DNA molecule #1: TACCGGATGCCAGATCAAATC
Complementary DNA #1: _____

DNA molecule #2: TACGGGGGGCGTAACCACAACT
Complementary DNA #2: _____

DNA molecule #3: TACCTGTAAAGCTACAAAATT
Complementary DNA #3: _____

TRANSCRIPTION

For each of the same DNA sequences below, write the sequence of messenger RNA codons that is synthesized during transcription. Be sure to separate the codons into *triplets*.

DNA molecule #1: TACCGGATGCCAGATCAAATC
mRNA #1: _____

DNA molecule #2: TACGGGGGGCGTAACCACAACT
mRNA #2: _____

DNA molecule #3: TACCTGTAAAGCTACAAAATT
mRNA #3: _____

TRANSLATION

For each of the mRNA codon sequences you have written, determine the sequence of tRNA anticodons that match it.

Anticodons for mRNA #1: _____

Anticodons for mRNA #2: _____

Anticodons for mRNA #3: _____

Using the chart on the back side, write the amino acid sequence coded for by each mRNA.
(Note: The code is based on mRNA codons, not tRNA anticodons.)

Polypeptide #1: _____

Polypeptide #2: _____

Polypeptide #3: _____

The Genetic Code
(Based on Messenger RNA Codons)

First Base	Second Base			Third Base
U	C	A	G	
U	Phenylalanine	Serine	Tyrosine	Cysteine
	Phenylalanine	Serine	Tyrosine	Cysteine
	Leucine	Serine	Stop	Stop
	Leucine	Serine	Stop	Tryptophan
C	Leucine	Proline	Histidine	Arginine
	Leucine	Proline	Histidine	Arginine
	Leucine	Proline	Glutamine	Arginine
	Leucine	Proline	Glutamine	Arginine
A	Isoleucine	Threonine	Asparagine	Serine
	Isoleucine	Threonine	Asparagine	Serine
	Isoleucine	Threonine	Lysine	Arginine
	start Methionine	Threonine	Lysine	Arginine
G	Valine	Alanine	Aspartic acid	Glycine
	Valine	Alanine	Aspartic acid	Glycine
	Valine	Alanine	Glutamic acid	Glycine
	Valine	Alanine	Glutamic acid	Glycine